

Cognitive Neurophysiology and in vivo Neurochemistry of Bipolar Disorder

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Propositions of this thesis

Cognitive Neurophysiology and *in vivo* Neurochemistry of Bipolar Disorder

Murat İlhan Atagün, April 2020

1. Bipolar disorder is characterized by diminished brain oscillations in auditory networks and lithium enhances brain oscillations in patients with bipolar disorder. (this thesis)
2. Sensory gating is altered in patients with bipolar disorder and schizophrenia, as well as their first degree relatives. (this thesis)
3. Medication improves sensory gating dysfunction in schizophrenia and bipolar disorder. (this thesis)
4. Patients with schizophrenia and bipolar type I disorder had significantly lower metabolite levels in the left superior temporal lobes, whereas bipolar type II patients had normal metabolite levels. (this thesis)
5. Auditory networks are disturbed in bipolar disorder and abnormalities of the auditory cortices may help in differentiating the subtypes of bipolar disorders. (valorization)
6. Network-based study of the brain has contributed to the literature. However, there is still much work to be done, because the brain consists of numerous independent parallel loops with multitude of small world connections.
7. If our brain was simple enough for us to understand it, we would be too simple to understand it. (Ken Hill)
8. Several genius people with mental disorders have produced impressive works in history. Serious mental disorders may also pave the way to creativity by increasing the contributions from unconscious minds and free associations. (Nancy Andreasen, *The Creative Brain* 2005)
9. Nature is always the same, and its virtue and power of acting are everywhere one and the same, that is, the laws and rules of Nature, according to which all things happen, and change from one form to another, are always and everywhere the same. So the way of understanding the nature of anything, of whatever kind, must also be the same, namely, through the universal laws and rules of Nature. (Spinoza, *Ethics*)

10. Those I call its actions are all our volitions, for we experience them as proceeding directly from our soul and as seeming to depend on it alone. On the other hand, the various perceptions or modes of knowledge present in us may be called passions, in a general sense, for it is often not our soul which makes them such as they are, and the soul always receives them from the things that are represented by them. (Descartes, Passions of the Soul)
11. Due to the Covid-19 pandemic, we are all housebound. As a response, my institution planned online PhD defenses and I am one of the first PhD candidates to attend an online examination as such. This is the future of education.